REMARKS

Statement Required By 37 C.F.R. 1.133(b)

A telephone interview was conducted with the Examiner on November 12, 2003 at the initiation of the Applicants. Attached to this paper is the Applicant Initiated Interview Request Form. The Applicants thank the Examiner for his time and consideration of the issues raised and discussed at the telephone interview. Presented immediately below is the Applicants' statement of the reasons presented at the interview as warranting favorable action as required by 37 C.F.R. 1.133(b).

The Examiner's rejection of Claims 1-8 under 35 U.S.C. 112, second paragraph was discussed. As indicated in the detailed discussion of the 112 rejection below, the Applicants pointed out that the elements set forth in independent Claims 1 and 5 were illustrated by example in Fig. 2. The Examiner suggested that Claims 1 and 5 be amended to recite that the field oxide layer is disposed within the contact region to further clarify the subject matter of the claims. As discussed below, the Applicants have amended the claims as suggested by the Examiner. Therefore, the Applicants submit that agreement has been reached with the Examiner on amendments to overcome the 112 rejection.

The Examiner's rejection of Claims 1 - 8 and 17 - 18 under 35 U.S.C. 102 as being anticipated by Deboer was discussed. As indicated in the detailed discussion of the rejection based on Deboer presented below, the Applicants asserted that Deboer does not teach "wherein said field oxide layer electrically isolates said metal plug contact from said contact region" as claimed in Claims 1 and 5. The Examiner agreed and indicated that the rejection of Claims 1-8 and 17-18 under 35 U.S.C. 102 based on Deboer would be withdrawn.

The Examiner's rejection on Claims 9-16, 19-20, and 23-24 under 35 U.S.C. 102 as being anticipated by Chuang was discussed. As indicated in the detailed discussion of the rejection based on Chuang presented below, the Applicants asserted that Chuang does not teach "wherein said metal plug contact is electrically isolated from said contact region" as claimed in Claims 9 and 13. The Examiner stated the citation of metal plug contact 124c in the Office Action

appeared to be in error, and the Office Action should have cited metal plug contact 124a. The examiner further asserted that metal plug contact 124a and the associated structure should be considered as teaching the elements as set forth in Claims 9 and 13. The Applicants disagreed and the reasons for the allowability of Claims 9 and 13 (and their dependent claims) over Chuang are presented in additional detail below. Hence, no agreement was reached with the Examiner on the rejection of Claims 9-16, 19-20, and 23-24.

In summary, (1) agreement was reached on the 112 rejection by claim amendments; (2) agreement was reached on the 102 rejection based on Deboer without claim amendments; and (3) no agreement was reached on the 102 rejection based on Chuang. More detailed remarks addressing the rejections are presented below. Please note that these remarks also incorporate the reasons presented by the Applicants at the telephone interview warranting favorable action.

Rejection Under 35 U.S.C. § 112

In the Office Action, the Examiner rejects Claims 1 - 8 35 under U.S.C. 112, second paragraph as being indefinite. Specifically, the Examiner asserts that, with regard to Claims 1 and 5, "it is not understood how a metal plug contact is disposed within a contact region and a field oxide layer electrically isolates separates (sic) this metal plug contact from the contact region since the metal plug contact is within the contact region." The Examiner asserts that the claim language is contradictory. The Applicants respectfully disagree that Claims 1 and 5 are indefinite.

The Examiner is reminded that a rejection under 35 U.S.C. 112, second paragraph, is appropriate if "the language of the claim is such that a person of ordinary skill in the art could not interpret the metes and bounds of the claim so as to avoid infringement." See MPEP 2173.02. The Examiner appears to assert that one skilled in the art would not understand how a metal plug contact can be both disposed within a contact region and electrically isolated from the contact region by a field oxide layer and concludes, therefore, that such a claimed configuration must be contradictory.

The Applicants submit that one skilled in the art would understand the metes and bounds of Claims 1 and 5. Specifically, the Applicants submit that one skilled in the art would understand

how an object can be both disposed within a region and electrically isolated from the region, and that such a configuration is not contradictory. For example, one can be within a swimming pool, but electrically isolated from the swimming pool by wearing insulating material. That is, the Applicants submit that just because an first element is within a second element does not mean that the first element can not be electrically isolated from a second element.

By way of further explanation, but not of limitation, the Examiner is directed to Fig. 2 of the application, as amended. Fig. 2 shows a contact region 12 that is defined by the width indicated by the lines with arrows. Contact plug 7 is clearly within the contact region 12. The field oxide region 11 is deposited over a portion of the contact region 12 and the field oxide region 11 serves to electrically isolate the contact plug 7 from the contact region 12. Hence, if the claimed configuration can be shown in a figure, the Applicants submit that the language is not contradictory.

At the telephone interview, the Examiner asserted that is was unclear in the claims as to the location of field oxide layer being recited in the claims. The Examiner suggested that the claims specifically recite the location of the field oxide layer in relation to the contact region. Therefore, the Applicants have amended Claims 1 and 5 to recite "a field oxide layer disposed on a semiconductor substrate and within a contact region." (underlining indicated added text). The Examiner indicated that this amendment would overcome the rejection based on 35 U.S.C. 112, second paragraph. Therefore, the Applicants respectfully request that the rejection of Claims 1 - 8 under 35 U.S.C. 112, second paragraph be withdrawn due to the amendment of independent Claims 1 and 5.

Rejections Under 35 U.S.C. § 102

Deboer et al.

In the Office Action, the Examiner rejects Claims 1 - 8 and 17 - 18 under 35 U.S.C. 102(e) as being anticipated by Deboer et al. The Examiner cites Figure 5 of Deboer and asserts that Figure 5 shows a semiconductor device adapted to prevent and/or thwart reverse engineering and comprising a field oxide layer 16 disposed on a semiconductor substrate 12, a metal plug contact

39 disposed within a contact region and above said field oxide layer wherein said metal plug contact contacts said field oxide layer and wherein said field oxide layer electrically isolates said metal plug contact from said contact region. In the Response to Arguments section of the Office Action, the Examiner states that the contact region is considered extending widely between field oxide 16 in Figure 5. The Examiner then asserts that the field oxide 16 electrically isolates the metal plug contact from the contact region.

The Examiner asserts that Deboer discloses a semiconductor device adapted to prevent and/or thwart reverse engineering, but the Examiner has not indicated any specific portion of Deboer that provides such a teaching. In fact, a word search of Deboer as presented on the USPTO web site indicates that neither the word "reverse" nor "engineering" are present in the Deboer disclosure. The Deboer disclosure states at col. 1, ll. 4 - 7, that "the present invention relates generally to the formation of contacts in integrated circuits." It appears that Deboer does not teach, disclose or suggest "a semiconductor device adapted to prevent and/or thwart reverse engineering" as claimed in Claim 1 or "a method for preventing or thwarting reverse engineering" as claimed in Claim 5. Therefore, the Applicants submit that the Examiner has not established a *prima facie* case of anticipation, since the Examiner has not shown how the cited reference teaches each and every element of the rejected claims.

During the telephone interview, the Examiner indicated that the arguments directed at the recitation of "reverse engineering" in the rejected claims were not persuasive, since this language appeared to be functional language. Since this was not the only argument that the Applicants had for the allowability of Claims 1-8 and 17-18 over Deboer, this line of reasoning was not further pursued by the Applicants during the telephone interview. However, the Applicants provide this argument in this response to indicate that no agreement was reached with the Examiner on this particular argument for patentability.

In the telephone interview, the Applicants set forth their disagreement with the Examiner's conclusion that Deboer teaches "said field oxide layer electrically isolates said metal plug contact from said contact region." In the Office Action, the Examiner states that the contact region extends widely between the field oxide 16 in figure 5 of Deboer. Figure 5 clearly shows

that contact 39 is in electrical contact with the region between the field oxide 16. In fact, contact plugs 39 are formed to be in electrical contact with active areas 18a and 18b. See figure 2 and col. 4, ll. 41 - 57. Therefore, the Applicants assert that Deboer does not teach "wherein said field oxide layer electrically isolates said metal plug contact from said contact region" as claimed in Claims 1 and 5, since Deboer teaches that the contact 39 is in electrical contact with the contact region as defined by the Examiner.

In the telephone interview, based on the arguments presented by the Applicants, the Examiner agreed that Deboer did not teach each and every element as set forth in rejected Claims 1 and 5. Therefore, the Applicants and Examiner reached agreement that Claims 1 and 5, as amended, and Claims 2-4, 6-8, and 17-18, dependent on either Claim 1 or Claim 5, are not anticipated by Deboer.

Chuang

In the Office Action, the Examiner rejects Claims 9 - 16, 19 - 20 and 23 - 24 under 35 U.S.C. 102(b) as being anticipated by Chuang. Specifically, the Examiner asserts that Chuang, in figure 1C discloses "a semiconductor device adapted to prevent and/or thwart reverse engineering comprising field . . . wherein said metal plug contact 124c is electrically isolated from said contact region 116a." In the Response to Arguments section, the Examiner states that "Chuang clearly discloses on figure 1c a metal plug contact 124c is electrically isolated from the contact region 116a."

The Examiner asserts that Chuang discloses a semiconductor device adapted to prevent and/or thwart reverse engineering, but the Examiner has not indicated any specific portion of Chuang that provides such a teaching. In fact, a word search of Chuang as presented on the USPTO web site indicates that neither the word "reverse" nor "engineering" are present in the Chuang disclosure. The Chuang disclosure states at col. 1, ll. 7 - 10, that "the invention relates in general to a manufacturing process for semiconductor devices." It appears that Chung does not teach, disclose or suggest "a semiconductor device adapted to prevent and/or thwart reverse engineering" as claimed in Claim 9 or "a method for preventing or thwarting reverse engineering" as claimed in Claim 13. Therefore, the Applicants submit that the Examiner has

not established a *prima facie* case of anticipation, since the Examiner has not shown how the cited reference teaches each and every element of the rejected claims.

Further, the Applicants disagree with the Examiner's assertion that Chuang "clearly discloses on figure 1C a metal plug contact 124c is electrically isolated from the contact region 116a." Fig. 1c shows metal plug 124c deposited on top of and in electrical contact with silicide layer 120d, which is in electrical contact with well pick-up region 118. See also col. 1, ll. 15 - 57. The region 116a is identified as drain 116a. See col. 1, l. 33. For the conventional semiconductor device depicted in fig. 1C to operate, there must be some flow of electrons through the well 102 and between the well pick-up region 118 and the drain 116a. Since the metal plug 124c is necessarily in electrical contact with the well pick-up region 118 and the well pick-up region is necessarily in electrical contact with the drain 116a, it must be concluded that metal plug 124c is in electrical contact with region 116a. On the other hand, Claims 9 and 13 recite, in part, "wherein said metal plug contact is electrically isolated from said contact region."

During the telephone interview, the Examiner first requested an indication of which drawing of the application illustrated the elements as set forth in independent Claims 9 and 13. By way of illustration, but not of limitation, the Applicants directed the Examiner's attention to Fig. 3 of the application, as amended. The Examiner then noted that the citation to metal plug contact 124c was in error, and the Office Action should have cited metal plug contact 124a. Specifically, the Examiner asserted that gate oxide 106 electrically isolated the plug 124a from the contact region. The Applicants assume that the Examiner still intends to refer to contact region as being taught by doped region 106a. The Applicants note that the Examiner cited similar elements in the rejection mailed on April 21, 2003, which the Applicants addressed in their response dated July 18, 2003. Therefore, the Applicants renew their disagreement that metal plug contact 124a and its associated structure teach each and every element as set forth in independent claims 9 and 13.

Fig. 1C shows metal plug contact 124a connected to metal plugs 124b and 124c by metal layer 126. Hence, metal plug contact 124a electrically connects gate 108 with the source 116b and the pick-up region 118 via metal plug contacts 124b and 124c. See also col. 1, ll. 40-43, of Chuang. As similarly described above, since metal plug contact 124a is necessarily in electrical contact

with the well pick-up region 116b **and** the well pick-up region 116b is necessarily in electrical contact with the drain 116a, it must be concluded that metal plug 124a is in electrical contact with region 116a. On the other hand, Claims 9 and 13 recite, in part, "wherein said metal plug contact is electrically isolated from said contact region." (Underlining added for emphasis). The Applicants apologize for not bringing this point to the attention of the Examiner during the telephone interview, but the Examiner's statement that element 124a should have been cited in the Office Action, rather than element 124c, required additional analysis of the references.

For the reasons presented above, the Applicants submit that the Examiner has not shown that Chuang teaches each and every element of Claims 9-16, 19-20 and 23-24. Therefore, the Applicants submit that the Examiner has not established a *prima facie* case of anticipation of those claims based on Chuang. The Applicants respectfully request that the Examiner withdraw the rejection of Claims 9-16, 19-20 and 23-24 based on Chuang.

In addition, the Applicants submit that claims 23-24 on their own are patentable over Chuang. Claims 23-24 each recite "wherein said metal plug contact contacts said field oxide layer." The Examiner in the Official Action asserts that Fig. 1C discloses such a limitation. With reference to claim 9, the Examiner asserts that Fig. 1C of Chuang discloses a field oxide layer 104 and a metal plug contact 124a. The Examiner further states that the metal plug contact 124c contacts the field oxide via the silicide layer 120d therein.

However, Claims 23 and 24 do not recite that the metal plug contact contacts the field oxide layer via another element. The Examiner's apparent assertion that one element can contact a second element via a third element is an interpretation of the term "contact" that is outside the plain meaning of the term. For example, the Examiner is directed to *Webster's New Universal Unabridged Dictionary*, Barnes & Noble Books, 1996, which provides a definition for contact as "1. The act or state of touching." Clearly, Fig. 1c shows that metal plug contact 124a does not touch field oxide layer 104. Therefore, the Applicants submit that Chuang does not disclose the limitation of "wherein said metal plug contact contacts said field oxide layer" as required by claims 23 and 24.

Conclusion

The Applicants respectfully submit that in light of the remarks above, all previous rejections of the claims have been overcome. Therefore, the Applicants submit that the claims are allowable over the prior art that has been cited. Favorable consideration and prompt allowance are earnestly solicited.

The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to deposit account no. 12-0415. In particular, if this response is not timely filed, the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136(a) requesting an extension of time of the number of months necessary to make this response timely filed and the petition fee due in connection therewith may be charged to deposit account no. 12-0415.

I hereby certify that this correspondence is being facsimile transmitted to Fax No. 703-872-9319 and addressed to: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

November 12, 2003
(Date of Transmission)

Ross A. Schmitt
(Name of Person Transmitting)

(Signature)

11-12-03
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Respectfully submitted,

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Encl.: Applicant Initiated Interview Request Form

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Applicant Initiated Interview Request Form

Application No.: 09/768,904 First Named Applicant: Lap-Wai Chow
Examiner: Nguyen, Joseph H Art Unit: 2815 Status of Application: Final Rej

Tentative Participants:
(1) Ross A. Schmitt (2) Examiner Nguyen
(3) I (4)

Proposed Date of Interview: 11/12 **Proposed Time:** 2 (AM/PM)

Type of Interview Requested:
(1) [X] Telephonic (2) [ ] Personal (3) [ ] Video Conference

Exhibit To Be Shown or Demonstrated: [ ] YES [X] NO
If yes, provide brief description:

Issues To Be Discussed

Issues (Rej., Obj., etc)	Claims/ Fig. #s	Prior Art	Discussed	Agreed	Not Agreed
(1) 112 Rej	1-8	N/A	[X]	[X]	[ ]
(2) 102 Rej	1-8, 17-18	DeBoer	[X]	[X]	[ ]
(3) 102 Rej	9-16, 19-20, 23-24	Chuang	[X]	[ ]	[X]
(4)			[ ]	[ ]	[ ]

[ ] Continuation Sheet Attached

Brief Description of Arguments to be Presented:
See attached draft response

An interview was conducted on the above-identified application on 11/12.

NOTE:
This form should be completed by applicant and submitted to the examiner in advance of the interview (see MPEP § 713.01).
This application will not be delayed from issue because of applicant's failure to submit a written record of this interview. Therefore, applicant is advised to file a statement of the substance of this interview (37 CFR 1.133(b)) as soon as possible.

(Applicant/Applicant's Representative Signature) (Examiner/SPE Signature)